

Listing of Claims:

1. (Currently Amended) An identification tag-(100) for use in a system-(400) for determining the position of the identification tag-(100), which may be in motion in a room in a building or other areas to be monitored, ~~characterised in that the identification tag (100) comprises~~ing an ultrasonic transducer-(190) connected to a transmitter-(180) adapted to transmit ultrasonic signals, together with a radio transmitter-(170) and radio receiver-(175) connected to an antenna-(195) for transmitting ~~and receiving~~ radio signals containing the identity of the identification tag-(100), the ultrasonic transducer and radio transmitter being arranged to transmit at preset intervals or in response to the tag being set in motion or exposed to light.

2. (Currently Amended) An identification tag-(100) according to claim 1, ~~characterised in that it comprises~~ comprising a control unit-(160) adapted to control the transmission of ultrasonic signals and radio signals.

3. (Currently Amended) An identification tag-(100) according to ~~claims 1 or 2~~claim 2, ~~characterised in that~~wherein the radio receiver-(175) is connected to the control unit-(160) and arranged to receive radio messages from other identification tags-(100).

4. (Currently Amended) An identification tag-(100) according to ~~claims 1 or 2~~claim 2, ~~characterised in that~~wherein the radio receiver-(175) is connected to the control unit-(160) and arranged to receive radio messages from stationary master units (200).

5. (Currently Amended) An identification tag-(100) according to claim ~~1~~2, ~~characterised in that~~wherein the radio transmitter-(170) is connected to the control unit-(160) and adapted to transmit radio messages to stationary master units-(200).

6. (Currently Amended) An identification tag-(100) according to ~~claims 1 or 2~~claim 2, ~~characterised in that it further comprises~~ing a sabotage unit-(110) connected ~~with to~~ the control unit-(160) for detecting any attempt to remove and/or open the identification tag-(100), and ~~wherein~~wherein, after such detection, the control unit-(160) is adapted to add such additional information to the radio signal transmitted from the

identification tag-(100).

7. (Currently Amended) A stationary master unit-(200), specially adapted to a system-(400) for position determination of objects which may be in motion, ~~characterised in that it comprises~~comprising:

- an ultrasonic transducer-(265) for receiving ultrasonic signals in the form of ultrasonic pulses, together with a radio transmitter unit-(275) and a radio receiver unit (270) connected to an antenna-(295) for transmitting and receiving information from an identification tag-(100) according to ~~claims 1-6~~claim 1,
- a receiver unit-(260) for detecting ultrasonic pulses transmitted from the identification tag-(100),
- signal processing means-(230) for receiving and interpreting radio signals, and for executing the following steps for processing the received ultrasonic pulses:
 - calculating transit time differences for received ultrasonic pulses transmitted from the identification tag-(100),
 - transmitting to a central processing unit-(410) via a network-(215) data containing transit time differences for received ultrasonic pulses, an identification of the room in which it is located, and the identification of the identification tag-(100).

8. (Currently Amended) A system-(400) for determining the position of at least one identification tag-(100), ~~characterised in that it comprises~~comprising:

- at least one identification tag-(100) according to ~~claims 1-6~~claim 1,
- one or more stationary master units-(200) according to claim 7 for detecting transit time differences for the ultrasonic pulses transmitted from the identification tag-(100),
- one or more stationary slave units-(300) with means for receiving ultrasonic signals in the form of ultrasonic pulses, means for detecting ultrasonic pulses transmitted from the identification tag-(100), means for measuring transit time differences for received ultrasonic pulses, together with means for transmitting this information to stationary master units-(200),
- a network-(215) interconnecting several stationary slave units-(300) and stationary master units-(200),
- at least one central processing unit-(410) for collecting, interpreting and processing data transmitted from master units-(200),
- a network-(215) interconnecting several stationary master units-(200) with the

central processing unit-(410), and

- processing means in the central processing unit-(410) for determining the position of a transmitter unit-(100).

9. (Currently Amended) A system according to claim 8, ~~characterised in that~~wherein the network connection-(215) interconnecting stationary slave units-(300) and stationary master units-(200) is radio-based.

10. (Currently Amended) A system according to claim 8, ~~characterised in that~~wherein the network connection-(215) interconnecting stationary slave units-(300) and stationary master units-(200) is wire-based.

11. (Currently Amended) A system according to claim 8, ~~characterised in that~~wherein the connection between stationary master units-(200) and the central processing unit-(410) is based on radio waves.

12. (Currently Amended) A system according to claim 8, ~~characterised in that~~wherein the connection between stationary master units-(200) and the central processing unit-(410) is wire-based.

13. (Currently Amended) A method for determining the position of one or more objects which may be in motion in a room in a building or other areas, ~~characterised in that the method comprises~~comprising:

- a) employing an identification tag-(100) according to ~~claims 1-6~~claim 1 to listen for radio messages,
- b) transmitting a radio message from the identification tag-(100) with a request for permission to transmit ultrasonic pulses,
- c) receiving a radio message from other identification tags-(100) if they are simultaneously executing transmission of ultrasonic signals,
- d) transmitting an ultrasonic pulse from the identification tag-(100) while it simultaneously transmits a radio signal, if it has not received a radio message telling that other identification tags-(100) are transmitting,
- e) receiving the ultrasonic pulse from the identification tag-(100) on one or more stationary master units-(200) and stationary slave units-(300), while stationary master

units-(200) are also simultaneously receiving a radio signal from the identification tag (100),

f) receiving the radio signal from the identification tag-(100) on a stationary master unit-(200),

g) calculating transit time differences for received ultrasonic pulse on stationary master units-(200) and slave units-(300),

h) transmitting information on transit time differences from stationary slave units (300) to stationary master units-(200),

i) transmitting information on transit time differences, identification of room and radio signal information received in stationary master units-(200) from stationary slave units-(300) and identification tag-(100) to a central processing unit-(410),

j) calculating the position of the identification tag-(100) which transmitted the ultrasonic pulse on the basis of the identification of the identification tag-(100) and transit time differences of transmitted ultrasonic pulse from the identification tag (100), together with knowledge of the position of each individual stationary master unit-(200) and stationary slave unit-(300) in each room or area.

14. (Currently Amended) A method according to claim 13, ~~characterised in that~~wherein the radio message to which the identification tag-(100) listens contains information concerning which ultrasonic frequency or coding is employed by other identification tags-(100) which are currently transmitting ultrasonic pulses.

15. (Currently Amended) A method according to claim 13, ~~characterised in that~~wherein the request in the form of a radio message from the identification tag (100) is transmitted when the identification tag-(100) is set in motion.

16. (Currently Amended) A method according to claim 13, ~~characterised in that~~wherein the request in the form of a radio message from the identification tag (100) is transmitted after a preset period.

17. (Currently Amended) A method according to claim 13, ~~characterised in that~~wherein the request in the form of a radio message from the identification tag (100) is transmitted when parts of the identification tag-(100) are exposed to light.

18. (Currently Amended) A method according to ~~claims 13 or 14~~claim 13, ~~characterised in that~~wherein the frequency or coding of the ultrasonic pulse employed by the identification tag-(100) is different to that currently employed by other identification tags-(100).

19. (Currently Amended) A method according to claim 13, ~~characterised in that~~wherein the radio signal transmitted from the identification tag-(100) while it simultaneously transmits an ultrasonic pulse contains the identification number and ultrasonic frequency or coding employed by the identification tag-(100).

20. (Currently Amended) A method according to claim 19, ~~characterised in that~~wherein the radio signal transmitted from the identification tag-(100) may further contain additional information, such as that an attempt has been made to remove the tag.

21. (New) A method of determining the position of a tag comprising the step of:
transmitting ultrasonic and radio signals simultaneously from the tag at preset intervals or in response to the tag being set in motion or exposed to light.

22. (New) A method as claimed in claim 21, further comprising the step of:
transmitting a radio message from the tag to another tag prior to performing the step of transmitting ultrasonic and radio signals simultaneously from the first tag.

23. (New) A method as claimed in claim 22, wherein the step of transmitting ultrasonic and radio signals simultaneously is not performed if the tag first receives an engaged signal from a second tag.

24. (New) A method as claimed in claim 22, further comprising conveying in said radio message information about said ultrasonic and radio signals selected from the group comprising the timing, the ultrasonic frequency and the coding of said signals.

25. (New) A method as claimed in claim 21, further comprising conveying in said radio signals information selected from the group comprising the identity of the tag and the status of the tag.

26. (New) A method as claimed in claim 25, wherein said ultrasonic signals do not convey information about the identity of the tag.
27. (New) A method as claim in claim 21, further comprising the steps of:
sensing that the tag is being tampered with; and
transmitting ultrasonic and radio signals simultaneously from the tag in response to said sensing.
28. (New) An identification tag for use in a system for determining the position of the tag, wherein the tag is arranged to transmit ultrasonic and radio signals simultaneously at preset intervals or in response to being set in motion or exposed to light.
29. (New) An identification tag as claimed in claim 28, wherein the tag is further arranged to transmit a radio message to another identification tag before a proposed simultaneous transmission of ultrasonic and radio signals.
30. (New) An identification tag as claimed in claim 29, wherein the tag is further arranged to transmit ultrasonic and radio signals simultaneously only if it does not first receive an engaged signal from a second tag in response to a radio message from the first tag.
31. (New) An identification tag as claimed in claim 29, wherein said radio message conveys information about the proposed simultaneous transmission of ultrasonic and radio signals selected from the group comprising the timing, the ultrasonic frequency and the coding of the signals.
32. (New) An identification tag as claimed in claim 28, wherein said radio signals convey information selected from the group comprising the identity of the tag and the status of the tag.
33. (New) An identification tag as claimed in claim 32, wherein said ultrasonic signals do not convey information about the identity of the tag.

34. (New) An identification tag as claimed in claim 28 comprising a tamper sensor and being further arranged to transmit ultrasonic and radio signals simultaneously in response to activation of said tamper sensor.